Expanding the Approach to Urban IPB

A Monograph
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13. ABSTRACT *(Maximum 200 Words)*

The inability of the intelligence system to prepare tactical commanders for the uncertainty of urban environments brought into question whether tactical intelligence is equipped to meet the needs for relevance, granularity, and timeliness. Proposed solutions continue to remain in the realm of force structure, equipment and training. But there is a lack of dialogue on Intelligence Preparation of the Battlefield (IPB) for urban operations. Urban IPB is recognized as a clear challenge for all ground combat forces and has prompted responses to address shortcomings. It requires another alternative approach in order to address urban complexity. The four-step IPB is inadequate in light of the resources that could be available to analyze this problem. There is an opportunity to address potential solutions, which lie in integrating theory, particularly understanding population dynamics in urban areas, more openly into doctrine. Consolidating urban IPB doctrine is an interim step to clarify approaches to analyzing urban centers but more importantly, help provide the basis to initiate analysis. Incorporating Joint Forces Command's Operational Net Assessment (ONA) provides a means to organize resources to support urban IPB and a way to apply examine and understand urban environments.

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ABSTRACT

EXPANDING THE APPROACH TO URBAN IPB by Major Peter S. Im, USA, 55 pages.

Although operational level intelligence was assessed as adequate for the initial phases of Operation Iraqi Freedom, discussion about the inadequacy of tactical intelligence support for commanders continues to resonate within the Military Intelligence Corps. The inability of the intelligence system to prepare tactical level commanders for the uncertainty of enemy actions in urban environments has brought into question whether tactical intelligence is equipped to meet the needs for relevance, granularity, and timeliness. In examining this, the majority of solution sets remain in the realm of force structure, equipment and training. But further examination points to the lack of dialogue on Intelligence Preparation of the Battlefield (IPB) for urban operations.

Urban IPB is recognized as a clear challenge for all ground combat forces and has prompted responses to address shortcomings. It requires another alternative approach in order to address the complexity of the urban environment. The current four-step process is inadequate in light of the resources that could be available to analyze this problem. At the same time, IPB is well understood within the military and provides a touchstone that should be built upon. With this tension, there is an opportunity to address what is seemingly an intractable problem set for the intelligence community.

Potential solutions lie in integrating theory, particularly in how we understand the dynamics of populations in urban areas, openly into our doctrine. Consolidating the doctrine that addresses IPB is an interim step can clarify how to approach analyzing urban centers but more importantly, help provide the basis to initiate analysis. Incorporating Joint Forces Command's Operational Net Assessment (ONA) provides a means to organize resources to support urban IPB and a way to apply different lenses in the examination and understanding of urban environments. Finally, establishing urban intelligence as a priority within the intelligence community as an ongoing mission area can bring necessary focus and resources to bear in an increasing complex environment.

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CHAPTER ONE

IPB for Urban Environments

> Maneuver commanders treated most maneuver as movements to
> contact…tactical intelligence at Division and below lacked the fidelity and
> timeliness required to enable decisions – information gaps about the enemy were
> resolved through direct contact and armed reconnaissance.[1]

In the after action reviews by tactical commanders after the initial combat phase of

Operation Iraqi Freedom, a common theme emerged about the inadequacy of intelligence support

for conducting urban operations. Expectations of what the intelligence system should do did not

meet the reality that tactical and operational units encountered. Most of these issues revolve

around the mismatch between technical collection systems and the threat environment.

Inadequate Human Intelligence (HUMINT), limited analytic capabilities, mismatched collection

sensors to target, limited bandwidth to support tactical operations, and and limited cultural

intelligence represent the major problem areas facing intelligence.[2] The majority of the solutions

remain in the material and training realm, as highlighted by the Army G2 in his testimony to the

Senate Armed Services Committee recent remarks to the Senate Armed Services Committee.[3]

He highlighted intelligence shortfalls in collection, analytic, and communications resources for

current operations in both Iraq and Afghanistan. The current emphasis by the G2 on providing

Actionable Intelligence provides a materiel and connectivity roadmap to solve current

intelligence shortfalls. According to LTG Alexander's statement,

> Analysis and sensing capabilities were inadequate at maneuver brigade and
> battalion echelons. Since the ability to strike at the enemy exceeded our ability to
> target them, we needed more Unmanned Aerial Vehicles (UAVs) and other
> targeting sensors. Every Division Commander stated that they needed both more

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[1] LTC David Tohn and MAJ Dan Corey, *Intelligence Battlefield Operating System Initial
Observations,* slide presentation (Fort Leavenworth, KS: Operation Iraqi Freedom Study Group, July
2003). slide 8.

[2] Dan French, United States Army Center for Army Lessons Learned, 21 May 2004 Briefing
Observations and Insights OIF-OEF.

[3] LTG Keith B. Alexander, Army G2 testimony to Senate Armed Service Committee, 7 April
2004.

UAVs and more Human Collection Teams (HCTs). Limited capabilities to conduct tactical surveillance of the enemy revealed the need for more signals intelligence (SIGINT) assets and more HUMINT capabilities. We are addressing these priorities through our close work with Task Force Modularity in redesigning the Army's new Maneuver Units of Action (Brigades of today).[4]

Although LTG Alexander's testimony was focused on the intelligence budget and programs, there was no mention of addressing the urban operational conditions that the intelligence system currently faces. A significant issue, the analytic shortfall seen at tactical echelons, appears to be one that has resonance with the complex urban environment.

Interest in intelligence support to urban operations has quietly taken front and center. Despite years of discussion, research, and thought, Urban Intelligence Preparation of the Battlefield (IPB) has generated attention due to the immediate need for re-examining our intelligence doctrine. At the tactical-operational level, the former V Corps commander during Operation Iraqi Freedom (OIF) LTG William Wallace highlighted the need to address Urban IPB.[5] His concerns stemmed not only from the sheer physical challenges faced by forces, but rather reflected his awareness of the complexity he faced. Issues like the impact of culture and societal dimensions were key to gaining insights on threats and opportunities. Despite an overall assessment of the accuracy of Coalition Forces Land Component Commander's (CFLCC) read, he did not have a clear understanding of the enemy intent, particularly with the Republican Guard forces in Baghdad. He also highlighted the danger of applying traditional order of battle models or templates that proved irrelevant as units disbanded and forces regrouped. LTG Wallace believed that there was too heavy a reliance on technical collection versus analysis. In the struggle for situational understanding, LTG Wallace highlighted the delay of Battlefield Damage Assessments (BDA) of combat actions that were 48-72 hours behind his decision windows. In his summation of intelligence, he believed it would be better to set the commander's expectations

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[4] Alexander, 4.
[5] LTG William Wallace's address to Advanced Military Studies Program at Fort Leavenworth, KS on 13 July 2004. Author received permission from LTG Wallace to cite address.

low on the ability of the intelligence to provide a definitive picture of the enemy and to better

prepare for greater uncertainty in the urban fight.[6]

Joint Urban IPB Perspective

Joint Forces Command's (JFCOM) role in as outlined in the Unified Command Plan is to

oversee training, interoperability, experimentation, force provisioning and transformation for the

joint force.[7] This role provides JFCOM a unique purview in examining urban operations

challenges. A key trend identified by JFCOM is the increasing urbanization of the battlefield. [8]

Although the urban environment is not new as far as the type of environment US forces can

anticipate operating in, there is greater emphasis on highlighting the complexity that commanders

face. The Joint Operational Environment (JOE) from Joint Forces Command briefly highlights

the challenge of what is now our current operational environment. The JOE refers to the growth

of urban centers due to increasing populations. In attempting the forecast potential trends, Joint

Forces Command highlighted the potential convergence of crime, social unrest, ethnic tension,

and access to communications that could potentially provide ingredients that could face US

forces. Additionally, urban centers add constraints on operations, such as in limiting collateral

damage and avoiding negative secondary effects.

An additional initiative by JFCOM is the collection and analysis of lessons from OIF and

Operation Enduring Freedom (OEF). This effort helped gather the observations and lessons from

various units during these recent conflicts and attempted to consolidate focus areas for improving

urban operations. They identified four key areas that frame the urban combat. First is a lack of

understanding of the complexity inherent in urban environments. Second is the difficulty of

identifying and targeting adversaries. Third is the difficulty in mitigating collateral damage while

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[6] Wallace.
[7] United States Joint Forces Command Mission Statement, available at
http://www.jfcom.mil/about/about1.htm, accessed 10 September 2004.
[8] United States Joint Forces Command, *Joint Operational Environment- Into the Future
Coordinating Draft* (Suffolk, VA, March 2004), 17.

delivering precision effects. Fourth is the gap between urban operational concepts and what reality is today.[9] All four of these points appear to capture the dynamics faced by commanders. For the purposes of understanding the problem of Urban IPB, the issues of understanding complexity of the urban environment and the adversary identification are germane to this study. In anticipation of war with Iraq, DoD took greater interest in identifying gaps in urban operations doctrine and tactics. Moreover, the desire by senior leadership to avoid urban operations in a older mental model (Siege, Rubble and Assault) for fighting in cities at all cost or else be prepared to commit large number of troops and sustain high numbers of casualties, to include non-combatants.[10]

From their assessments of combat operations during OIF, JFCOM identified the need to provide actionable intelligence to commanders. On of the specific points they raised was the lack of IPB that could "ensure mission success in the urban environment."[11] This was particular observation was couched under the focus area of targeting in urban environments, which is the traditional focus for IPB. The recommended actions to address the IPB shortfall focused on improving HUMINT doctrine to improve reporting, improve tactics, techniques, and procedures (TTP) on architectures and incorporate Effects Based Operations doctrine into decisionmaking. From a Materiel and Organizational solution, JFCOM recommended developing intelligence architectures that could speed the delivery of products to commanders, identify programs that are dedicated to urban intelligence analysis and assess their effectiveness and establish a working group to identify and incorporate joint urban intelligence requirements in future Intelligence, Surveillance and Reconnaissance (ISR) capabilities.[12]

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[9] United States Joint Forces Command, *Operation Iraqi Freedom Major Combat Operations and Post-Major Combat Operations Stability, Transition and Reconstruction Phase Findings, Joint Integrated Lessons Learned* (Suffolk, VA: Joint Center for Lessons Learned. 26 July 2004), 3.
[10] Ibid. Encl 1-3.
[11] Ibid. Appendix B-7.
[12] Ibid. Appendix B-9.

What is the Problem with Urban IPB?

Despite a history of numerous urban operations in Bosnia, Kosovo, Haiti, Somalia and Panama, elements of intelligence shortfalls from US experiences in urban centers tended to focus faulty analysis of the urban terrain, inadequate knowledge of adaptable low-tech threats, and need to account for civilian population, socioeconomic factors, and infrastructure.[13] The lessons learned from an intelligence standpoint appeared to either failed to take hold because of a lack of organizational incentive for examination and chance, or perhaps it may be due to the belief that such small conflicts and interventions were anomalies and did not warrant a review of IPB. The Urban IPB executed for OIF was inadequate in comparison to operational and tactical commanders' expectations. The reluctance to incorporate lessons from earlier conflicts and induce change is being overcome by the current challenges faced within the intelligence community on addressing urban operations.

Urban IPB is far broader and entails greater complexity than what has been previously emerged for FM 34-130 *Intelligence Preparation of the Battlefield* and even the current draft of FM 2-01.3 *Intelligence Preparation of the Battlefield.* IPB is an essential element othe military intelligence community "culture." Because the function of analyzing the threat and environment to aid in decisionmaking remains invaluable, an examination of Urban IPB is necessary to identify a means to improve this capability. In the end, improvement of this capability involves re-examining doctrine as well as placing focus on the problems. More sensors and resources are only part of the answer in mitigating risk in urban operations.

Urban IPB is recognized as a clear problem area facing land forces. Despite recognition of challenge from smaller interventions over the past decade, recent operations have brought focus on concerns about our capability to understand urban centers. Commanders, recognizing the need for the better Urban IPB capability have pressed the Intelligence Battlefield Operating

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[13] United States Department of Defense, *Handbook for Joint Urban Operation* (Washington, DC: Joint Chiefs of Staff, 17 May 2000), IV-15.

System (IBOS) for change. Increased emphasis on joint operations has also force the recognition of the limitations of a collection and targeting centric approach to Urban IPB in complex environments. Research on Urban IPB is limited to examination of past conflicts that have unique contexts. Doctrinal responses would seem to indicate some need for change in approaching IPB but at best, appear limited to the lens of major combat among conventional forces.

CHAPTER TWO

Literature Review

Due to the mixed reviews on the performance of the IBOS during OIF, there is an immediate impetus for examining Urban IPB. Fortunately, material is accessible through organizations like the Center for Army Lessons Learned (CALL), JFCOM's Joint Integrated Lessons Learned, and others that compile the observations and comments of those in the field.

With regard to Urban IPB, there is no immediate or systemic discussion of the process other than what can be assessed by posted feedback from CALL and the Battle Command Training Program (BCTP). Both of these organizations are primarily geared toward tactical problems but based on their observations, issues about the process and the comprehensive need to examine Urban IPB emerge. TTPs that CALL focuses on and the doctrine application that BCTP focuses on provide lenses on the direction that intelligence doctrine may go.

Doctrine from the Army that includes FM 2.01.3, *Intelligence Preparation of the Battlefield*, and Special Text (ST) 2-91.4, *Intelligence Support to Operations in the Urban Environment*, clearly represents the institutional response to the challenges faced. Additionally, the Joint Doctrine shows the increased interest in Urban operations, but overall mirrors much of the Army's perspective on IPB.

Additionally, the works of numerous military professionals on the Urban IPB problem set provide an additional basis of thought. Monographs over the past ten years show not only the gradual maturation of thought on how Urban IPB differs from existing doctrine, but also provides a set of themes that continue to echo today on how the IBOS needs to be focused in support of commanders. Additional work by Rand on urban operations also included an analysis of the Urban IPB process.

Recent work by JFCOM on the Operational Net Assessment (ONA) and Effects Based Operations (EBO) provides a glimpse of potential models that harness the network of sensors, processors and analysts. Their charter for examining joint urban operations helps to harmonize

the efforts of all the services, especially those efforts by the Army and Marine Corps. The challenge faced in the transformation efforts is to test these concepts. Exercises like MILLENIUM CHALLENGE 02 helped to bring attention to the potential of such concepts. However, such simulations may equally hide critical assumptions about the capabilities of the intelligence community. Ultimately, intelligence professionals face the reality of attempting reducing uncertainty by providing the intelligence and analysis to increase knowledge.

After action reviews (AARs) provide a critical but limited glimpse at where the problems of Urban IPB remain. General trends appear from these AARs that address the inadequacy of technical collectors, the need for more HUMINT, the lack of understanding of the environment, the need for greater integration, and streamlining of process. Of note, the work from the OIF Study Group provided an initial analysis of the intelligence battlefield operating system's performance during OIF phases I –III. This work represented a clear snapshot in time of how intelligence system worked. The study group's interviews with personnel from tactical units to national level agencies are significant datapoints to consider. However, the majority of the Urban IPB considered in "*On Point*" dealt only with the challenge of operational planning for Bagdhad during the fall of 2002. The key lessons that emerge from the urban IPB was the realization that expertise on the various challenges of Urban IPB could not be addressed alone by the V Corps staff (or even the Third Army staff). The planners clearly understood the operational constraints of manpower and drew lessons from the Russians in Grozny. Detailed planning, a multi-discipline approach, and intense collaboration were critical to avoiding the attrition, rubbling and leveling of Baghdad. The use of a systems analysis approach clearly comes through in the brief narrative. It also points out that this planning effort took six months and eventually involved drawing outside expertise to understand how the systems of the city interacted.[14]

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[14] COL (Ret.) Gregory Fontenot, LTC E.J. Degan, and LTC David Tohn, *On Point: The United States Army in Operation Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2003), 48-49.

During the Senior Intelligence Leaders Conference at Fort Huachuca, the OIF Study Group's findings highlighted the success of pre-execution IPB prior to major combat operations. However, this planning (which was supposed to enable what was called a "running estimate") did not keep pace with the tempo of operations. The shortfall in analytic effort was reflected in the following observations:

> We missed complex and subtle political insights about the Regime security forces' effects in the town/cities: (This had) implications for operational planning and force allocation. It took contact with the enemy for us to understand we were wrong and to recover.[15]

Although there is no clear specific mention of Urban IPB, it is clear from the direction of the comments that the IPB was seen as a destination or final product, not adaptive, interactive or dynamic. The briefing highlighted many strengths and positive notes on the IBOS, but in it harshest critique, the assessment was that commanders' expectations of the intelligence system outstripped its ability to meet their requirements.[16]

The Center for Army Lessons Learned (CALL) sent a team as well to observe how the IBOS performed in both OIF and OEF. The team produced a CALL Newsletter (CALL 03-27) that was focused on tactical observations and lessons. Although not directly addressing Urban IPB, the newsletter highlighted issues that directly impact the IPB process. The observation team assessed that the intelligence staffs were ill-prepared to support their commanders due to a lack of understanding of the targeting process, the IBOS systems and their employment, intelligence connectivity, analysis, and basic technical skills like operating the units communications systems.[17] Although these observations were a snapshot in time, the impression of the tactical intelligence system was that the basic processes like IPB were not effectively executed nor considered. The question posed by the CALL team was whether officers and 96B intelligence

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[15] LTC David Tohn and MAJ Dan Corey, "OIF Lessons Learned Phase I-III." presentation at *2003 Military Intelligence Branch Senior Intelligence Leader's Conference*. Fort Huachuca, AZ, slide 9.

[16] Ibid., slides 10-12.

[17] United States Army Center for Army Lessons Learned, *CALL Newsletter 03-27 Operation Outreach* (Fort Leavenworth, KS: October, 2003), 11.

analysts understood their role in providing IPB for the Military Decision Making Process

(MDMP).[18]   The implication is that the IPB methodology may not be as well understood

throughout the intelligence field. In 1999, CALL produced a newsletter compilation of urban

operations tactics, techniques and procedures (TTP). Mr. Mike Ley from the Doctrine Division at

Fort Huachuca additionally produced an article that attempted to establish a framework for

conducting Urban IPB. Most of his work centered on accounting for the complex physical

dynamics of the urban terrain, such as the lines of communication (LOC), street patterns and

types of structures. His thirteen-step framework identified key physical considerations of the

Urban environment that heavily focused on describing the battlefield environment and potential

effects on operations in the as part of the MDMP. Mr. Ley's work improved awareness of the

difficulty in the description and analysis of the urban battlespace along traditional IPB lines. This

work still remains at the core of urban doctrine.

Doctrinal responses to Urban IPB were static since the 1994 publication of FM 34-130,

Intelligence Preparation of the Battlefield. This manual defined IPB as "a systematic, continual

process of analyzing the treat and environment in a specific geographic area. It is designed to

support staff estimates and military decision making. Applying the IPB process helps the

commander selectively apply and maximize his combat power at critical points in time and

space."[19] This manual introduced the four-step methodology of Defining the Battlefield

Environment, Describe the Battlefield's Effects, Evaluate the Threat, and Determine the Threat

Courses of Action. IPB for Urban operations was not specifically addressed, but instead, the

manual addressed Military Operations Other Than War (MOOTW), which emphasized

intelligence on demographics and granularity of information for non-combat operations.[20] In

February 2003, the initial draft of FM 2-01.3 *Intelligence Preparation of the Battlefield*, emerged

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[18] Ibid.

[19] United States Army Field Manual FM 34-130 *Intelligence Preparation of the Battlefield*
(Washington, DC: Department of the Army, 08 July 1994), 1-1.

[20] Ibid., 6-1 – 6-3.

for review. Though not nearly complete, this IPB manual does not directly address Urban IPB, nor included the urban framework outlined in the Mike Ley's work. In August 2004, Special Text (ST) 2-91.4, *Intelligence Support to Operations in the Urban Environment*, emerged in draft form for review by the Army intelligence community. This draft expanded on Ley's efforts but did not specifically address the IPB construct. Instead, the Special Text provided a checklist of the numerous intelligence requirements on infrastructure, population and threat. The rest of the work did not expand into actual analysis or processes to conduct Urban IPB. In sharp contrast ST 2-91.1, *Intelligence Support to Stability Operations,* expands the discussion on applying the IPB four-step framework to each of the stability and support missions. This student text goes on to provide a framework for analyzing insurgency and provides a brief discussion on analysis, synthesis and bias.[21] Although there is no specific section on Urban IPB, ST 2-91.1 clearly focuses on the social linkages and uses insurgency models to provide templates to understand the threats. Neither FM 34-130 nor FM 2-01.3 provides such models. FM 3.06, *Urban Operations* (June 2003), dedicates 20 pages to an Urban IPB appendix. Unfortunately, it is descriptive of the types of IPB products necessary to support urban operations rather than providing a method or model to understand the integration of the society and infrastructure to support decisionmaking.

From a Joint Doctrine perspective, the Joint IPB manual, JP 2-01.3, *Joint Tactics, Techniques and Procedures for Joint Intelligence Preparation of the Battlespace* (May 2000), expanded on the Army's FM 34-130 and incorporated service specific operational intelligence considerations. Although no specific elements on urban IPB is discussed, the manual did follow similar lines of FM 34-130 in highlighting the process from a joint perspective. In the same year, the *Handbook for Joint Urban Operations* was published and emphasized the importance of detail, maximizing the use of HUMINT, and integration of command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR). JP 3-06, *Doctrine for Joint*

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[21] United States Army Intelligence Center Student Text 2-91.1 *Intelligence Support to Stability Operations and Support* Operations (DRAG) (Fort Huachuca, AZ: August, 2004), 3-2 – 3-4.

Urban Operations (September 2002), provided cursory consideration JIPB for Urban Operations, but the more significant contribution was the recognition of an "Urban Triad" that consists of the physical terrain, the population, and the infrastructure that ties the population to the terrain and to each other.[22] It also highlights the need to incorporate other sources of information to include outside the DoD and the United States Government (USG).

Academic examination of Urban IPB can be categorized into two camps. The first one deals predominantly with the IPB methodology and examines the viability of the current four-step model versus an alternative model. The second focuses predominantly on historical examples and generalizes basic principles or concepts to be considered in Urban IPB as a subset to Urban Operations. Both avenues of inquiry provide glimpses into the deficiency of doctrine against the complexity of the urban environment.

Recent examination of IPB methodology by Major Larry Brown points to the greater focus on predicting enemy behavior through IPB deduction versus using deliberate argumentation to form and test potential hypotheses about an enemy. Major Brown sees the four-step IPB process as inadequate for today's complex battlefield due to its original focus on large enemy combat formations.[23] His critique of IPB also includes the structural linearity of the process, which fails to account for the multitude of possible outcomes. As Brown states, "The art of war concerning intelligence is not to reduce uncertainty as much as to manage it."[24] An alternative approach to IPB dealt with refining the four-step process to incorporate additional models on system theory and center of gravity analysis. Major Francesca Ziemba's examination of both OEF and OIF lessons highlighted the disconnect between doctrinal IPB process and its application in operations. Her critique of the IPB process also highlighted the use of TTPs to

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[22] United States Department of Defense Joint Publication 3-06 *Doctrine for Joint Urban Operations* (Washington DC: Joint Chiefs of Staff, September 2002), I-2 – I-6.
[23] Major Larry Brown, *The Enemy We Were Fighting Was Not What We Had Predicted: What is Wrong With IPB at the Dawn of the 21st Century?* Monograph. (Fort Leavenworth, KS: School of Advanced Military Studies, 2004), 3-5.
[24] Brown, 25.

address doctrinal gaps, particularly in Military Operations Other Than War (MOOTW). Most importantly, Ziemba's work provides a system to integrate the social linkages to create tailored IPB products. [25] In essence, IPB needs to incorporate more of the MOOTW considerations as well as incorporate a systems model towards analysis. Her model, which analyzed friendly, target/threat, neutral, unknown, and variable (FTNUV) sought to identify and categorize critical elements of the battlespace. This systems model provides an alternative to the "red versus blue" model that frames current doctrine.

Major Charles Innocenti's work, *Intelligence Analysis for Urban Combat,* uses case studies to assess the effectiveness of three analytical techniques: pattern analysis, weight indicators, and wargaming friendly and enemy capabilities. His examination of intelligence support in Hue, Beirut and Grozny highlighted the need for information on the social environment that is not present in traditional IPB instruction. Innocenti posits the use of combinations of these techniques is needed in order to cope with changing and adaptive threats. He asserts that the urban analytic framework proposed by Mike Ley should incorporate more social and cultural factors to help illuminate potential motivation, goals and intent.[26] Then Lieutenant Colonel (now Brigadier General) Brian Keller's detailed examination of Grozny highlighted the need to update doctrine and placed focus on analyzing critical nodes, which can take the form of key infrastructures or represent threat centers of gravity or decisive points.[27] He advocated specialized products geared towards supporting tactical commanders such as detailed imagery and real time imagery downlinks during operations. According to Keller, IPB needs to incorporate greater investigation of the will, combat cohesiveness and cultural characteristics as a

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[25] Major Francesca Ziemba, *Third Millennium Intelligence Preparation of the Battlefield: Updating Doctrine to Improve Templating*, Masters in Military Arts and Sciences Thesis. (Fort Leavenworth, KS: United States Army Command and General Staff College, 2004), 62-67.

[26] Major Charles W. Innocenti, *Intelligence Analysis for Urban Combat*, Monograph. (Fort Leavenworth, KS: School of Advanced Military Studies, 2002), 63-66.

[27] LTC Brian Keller, *Intelligence Support to Military Operations on Urban Terrain: Lessons Learned from the Battle of Grozny*, Monograph. (Carlisle Barracks, PA: United States Army War College, 2000), 27-28.

means to understand adversary's intent.[28] He further advocated the development of a Joint

MOUT Analysis Center (JMAC) in order to develop the requisite databases on urban centers to

support combatant commander's needs. Such an organization could provide access to other

elements of the USG in the form of interagency working groups. Additionally, Keller

recommended the development of urban analysis and collection teams within INSCOM force

projection brigades to provide operational and tactical level support.[29] LCDR James Steadman

agreed with Keller in his advocacy of a Joint Analysis Center for MOUT in his Naval War

College paper. He placed greater emphasis on reorganizing current joint intelligence structures in

order to meet the needs for urban databases. Steadman believed that J2s are unable to leverage

national intelligence agencies to produce synthesized products.[30] He further asserted that

responsibilities for urban Joint Intelligence Preparation of the Battlefield (JIPB) production,

procedures, and prioritization must be addressed by combatant commanders in order to focus

resources and efforts.

JFCOM's development of the Operational Net Assessment (ONA) concept represents a

parallel effort in improving intelligence support. The emerging ONA concept is the "integration

of people, processes, and tools that use multiple information sources and collaborative analysis to

build shared knowledge of the adversary, the environment, and ourselves."[31] ONA is focused on

understanding systems and articulating the key relationships, processes, and leverage points of an

adversary. The PMESII (Political, Military, Economic, Social, Informational, and Infrastructure)

framework attempts to provide a broader picture of elements that affect an adversary's decision

making process. ONA is not meant to supplant JIPB but provide a standing database to

understand how an adversary is capable of waging war. ONA is intended to also project friendly

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[28] Ibid., 28.
[29] Ibid., 30.
[30] LCDR James Steadman, *"Understanding the Urban Battlespace: An Intelligence Challenge"* United States Naval War College (Newport, RI: 5 Feb 2001), 8-9.
[31] Joint Warfighting Center Joint Doctrine Series Pamphlet 4, *"The Doctrinal Implications of Operational Net Assessment"* (Suffolk, VA: 24 February 2004), 8.

force response through a range of effects and options. [32] The ONA concept relies on the ability to draw expertise from multiple sources from within and outside DoD. The core of the ONA is a systems of systems analysis (SoSA) that begins with focused datamining of an adversary's PMESII structure.[33] Within each of these PMESII areas of a target entity, basic research, analysis, vulnerability identification, and node identification are conducted and a subsequent identification of exploitable vulnerabilities is articulated. Ultimately, the intent is to go beyond general military intelligence by anticipating linkages between nodes of a system and the potential effects that can be generated by a range of actions. This concept requires connectivity and a collaborative analytic environment.

The challenge of urban operations, coupled with the need for intelligence to help minimize risk to the mission and to the force, is not new. Assessments from current operations point to a need to emphasize the social domain aspects of urban intelligence. HUMINT is cited as the most critical discipline in shortage for these operations. Although IPB doctrine has remained stable with the four-step process, additional works on intelligence in Stability Operations and Support Operations (SOSO) provides an avenue of consideration for incorporating the population factors in IPB. Clearly there is a greater expectation for detail and granularity in the intelligence needed for urban operations. Joint doctrine mirrors much of the Army's IPB work but additionally recognizes a joint and interagency aspect needed to dominate all dimensions of the battlespace. Academic writings examine the internal system of IPB where the four-step process remains intact but with further modifications in scope of analysis. Others point to the complexity of the urban environment based on case studies as a reason to look at urban IPB as an inherently joint or interagency effort that needs focus and direction. Finally, experimentation has offered a potential alternative process in the ONA, which promises a holistic approach to understanding adversaries in their environment. As a concept, it relies heavily on

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[32]United States Joint Forces Command, *Standing Joint Force Headquarters Standard Operating Procedure and Tactics, Techniques and Procedures (Draft)* (Suffolk, VA: 25 July 2003), B-37 – B-38.
    [33] Ibid., B-8 – B-12.

assumptions about the ability to understand and access expertise as well as the ability to maintain large and comprehensive databases on potential threats.

In examining Urban IPB, there is a need to step away to examine the underpinning of the processes involved in trying to understand the urban environment, the potential threats, and how these factors are inextricably linked to each other. Doctrine provides a tool to assess the state of thought and direction of thinking that can shapes operations. This will be at the core of the methodology of this study.

CHAPTER THREE

Methodology

This study asserts that current IPB doctrine is inadequate for urban operations.

Commanders believe that the current doctrinal approach does not meet their expectations for

timeliness, accuracy, and relevance. The IPB process taught at Combat Training Centers and

BCTP Warfighter exercises is optimized for major combat operations with conventional forces,

not the stability operations and support operations that characterize urban battlespace. Since there

is little in the way of Urban IPB doctrine, a review of information requirements and perceived

shortfalls based on after action reviews of current operations, observations from BCTP, CALL,

and lessons gleaned from previous research provide the direction for exploration. From this,

these issues will be considered in light of the Urban Triad model posed in JP 3.06 which consists

of the population, terrain, and infrastructure. This study will review both the IPB and ONA

processes in order to understand the differences between the two processes. Although this is a

limited model, the Urban Triad provides a lens to examining the strengths and weaknesses of both

the draft IPB doctrine and the ONA concept in light of lessons from historical and current

operations.

In examining IPB and ONA, consideration of the context in which these processes

attempt to operate in is necessary. David S. Alberts and Richard Hayes provides a classification

of four domains of warfare (physical, information, cognitive and social) that proves useful in

addressing urban operations.[34] The physical domain refers to the terrain, weather, structures, and

infrastructure that exist. The information domain pertains to the collection, dissemination,

storage and processing of information. The cognitive domain refers to mental models, biases,

perceptions, and understanding of information. The social domain are the behaviors, processes

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[34] David S. Alberts and Richard Hayes, *Power to the Edge: Command and Control in the Information Age* (Washington, DC: Department of Defense Command and Control Research Program, June 2003), 14.

and interactions that define social organizations.[35] Urban IPB doctrine has primarily focused on the physical domain and ways to incorporate these factors into the describing the physical battlefield environment. Likewise, the management of information is predominantly a technological problem that continues to merit attention, but does not significantly impact the comparison of both processes. However, this examination of IPB and ONA will compare the ability of each process account for urban operations within the cognitive (the ability of each process to facilitate understanding of the environment, effects and threats) and social (behaviors, interactions, cultural context) domains.

The examination of Urban IPB will primarily consider the intelligence preparation process prior to operations within a city. The predominance of urban intelligence doctrine already addresses the challenge of current operations within a city and the increased need for human intelligence (HUMINT). However, there is very little addressed prior to entry into an urban center, other than the reliance on technical means (imagery intelligence [IMINT], signals intelligence [SIGINT], measurements and signature intelligence [MASINT]) to meet commander's information needs. The construct for evaluating which process provides better support will be the ability of each process to access information (acquiring data to support analysis), level of analytic effort (ability to access subject matter expertise or access to mental constructs to help describe the understand the urban environment) and applicability to deliberate and contingency planning (examining the design of each process to see if they are optimized for either near term or long term analysis to support decision making).

The scope of this study is limited to examining content of draft and current doctrine, monographs, and the assessments from operations in the form of lessons learned or TTP. The predominance of the research relies on content analysis. The reports from operations in the field in the form of CALL, BCTP, and briefings from units provide the assessments on how the

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[35] Ibid.

intelligence system functioned with regards to urban operations. This material provides the background for the problem of Urban IPB. Doctrinal literature in the form of Field Manuals and Joint Publications represent the intellectual holding and official thought on the principles of urban operations and intelligence. Doctrine in this paper is descriptive of the principles and body of knowledge for warfighting. The use of monographs also contribute to the intellectual holdings for Urban operations, but in the context of this study, were used to illuminate key aspects of Urban IPB that merit consideration in future doctrine.

An assumption is that the data collection up until now can only characterize past and current operations. It does not address future threats nor other potential contingencies. With adaptive threats, intelligence processes and methods will change in relation to the context of the conflict. Another assumption is that the examination of ONA will lack some of the precision and definition due to its relatively early development as a transformational concept. Some of the capabilities to facilitate ONA have yet to be determined. Therefore, the ONA concept may lack rigor in this study, particularly in the how it is employed in the prototype Standing Joint Force Headquarters (SJFHQ).

Potential shortfalls of this research is the use of draft intelligence doctrine. Both the ST 2-91.4, *Intelligence Support to Operations in the Urban Environment*, and ST 2-91.1, *Intelligence Support to Stability Operations*, were not in final form at the time of this research. However, for purposes of this study, these drafts will be clear indicators of the direction the overall doctrine will be in its final form. Another area not addressed in this study is intelligence operations and force structure to support Urban IPB. The predominance of efforts in experimentation as well as the recommendations of the Defense Science Board (DSB) in 1994, addressed the material efforts at improving urban ISR.[36] Recommendations by the DSB in the summer of 2004 focused more

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[36] United States Department of Defense, *Defense Science Board Task Force on Military Operations in Built-Up Areas* (Washington, DC: Office of Undersecretary of Defense for Acquisition and Technology, November 1994), 27-28.

on organizational and process changes needed to improve intelligence to support stability and transition operations.[37] Additionally, the *Joint Urban Operations Road Map* commissioned by the Secretary of Defense outlines the technologies and future operational concepts associated with supporting Urban IPB.[38]

Since doctrine on Urban IPB remains unclear, the endstate of this research is to highlight the strengths and weaknesses of both the IPB and the ONA process against the Urban Triad construct. From this comparison, an operational level process emerges that highlights the value of non-linear processes to address complexity. Likewise, the value of traditional four-step inductive process like IPB provides systematic rigor that is needed for short term analysis and decisionmaking that is characterized by the MDMP process. For urban operations, the trend toward more SOSO-like characteristics will requires doctrine to place greater consideration on analysis of cognitive and social aspects of the urban environment versus analysis on what our current collection systems are optimized for. As in SOSO, Urban IPB is a joint and interagency endeavor that requires access to differing levels and types of expertise. Urban IPB doctrine needs to account for such distribution of analytic effort and more importantly, processes like collection management and concepts such as intelligence reach (the process by which deployed military forces rapidly access information from, receive support from, and conduct collaboration and information sharing with other units unconstrained by geographic proximity, echelon, or command.).[39] The incorporation of ONA into Urban IPB provides an opportunity to synchronize the efforts to reduce uncertainty under complex circumstances. The strength of ONA is its ability to negotiate complexity and determine linkages and effects. This combined with the focus

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[37] United States Department of Defense, *Defense Science Board 2004 Summer Study on Transition to and from Hostilities Briefing* (Washington, DC: 2 September 2004), slides 28-29, 33-43.

[38] Institute for Defense Analyses, *Department of Defense Roadmap for Improving Capabilities for Joint Urban Operations* (Alexandria, VA: Institute for Defense Analyses, October 2002), IV-26 – IV-32.

[39] Department of the Army Field Manual FM 2-33.5 *Intelligence Reach Operations* (Washington, DC: Department of the Army, 1 Jun 2001), 1.

embedded within the IPB methodology poses a unique possible solution to this difficult problem set.

The methodology attempts to assess the IPB process as it currently stands in draft doctrine. This doctrine will be examined against the ability to address both cognitive and societal domains of warfare, as defined by Alberts and Hayes. Additionally, the JFCOM ONA concept represents an alternative process that can address urban battlespace complexity. In analyzing these processes, doctrinal references provide insights on how these processes cope with the Urban Triad construct and what are potential strengths and limitations of both IPB and ONA. Both processes may not stand alone, but in examining both doctrinal and academic sources, it is clear that wide range of issues associated with urban operations are not easily addressed by single method or source doctrine.

Analysis

> The road forward that eventually leads to timely and accurate intelligence support to US forces conducting urban operations is a long one rife with obstacles and detours. Arguably, one could say that urban intelligence is currently a disparate maze of multiple roads, all under some state of construction or abandoned—construction without a defined final destination or abandoned due to resource and/or vision shortfalls.[40]

Based on the observations and reports from the field in operations, there are key assessments that continue to challenge the intelligence BOS. JFCOM's collection of observations pointed to the continuing lack of appreciation for complexity within the urban environment. In examining the requirements for urban intelligence, they describe the urban environment in terms of battlespace, which is defined as "the environment, factors, and conditions that must be understood to successfully apply combat power, protect the force, or complete the mission. This includes the air, land, sea, space, and the included enemy and friendly forces; facilities; weather; terrain; the electromagnetic spectrum; and the information environment within the operational areas and areas of interest."[41] Using this construct, there is little emphasis on describing or analyzing the cognitive and social domains associated with the populations in a city.

The traditional IPB process deconstructs the environment in the initial steps of Defining and Describing the Battlefield Environment. Here, the IPB process traditionally starts with a checklist of assessing geography, climate, and other physical elements that describe the environment and its potential effects. In looking at the Urban Triad construct of population, terrain and infrastructure, the IPB process can generally describe the elements that fall in the triad (based on the availability of collection and products to an analyst).

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[40] Institute for Defense Analyses, IV-26 .

[41] United States Department of Defense Joint Publication 1-02, *DOD Dictionary of Military and Associated Joint Terms*, available from http://www.dtic.mil/doctrine/jel/doddict/data/b/00700.html; accessed 14 Nov 2004.
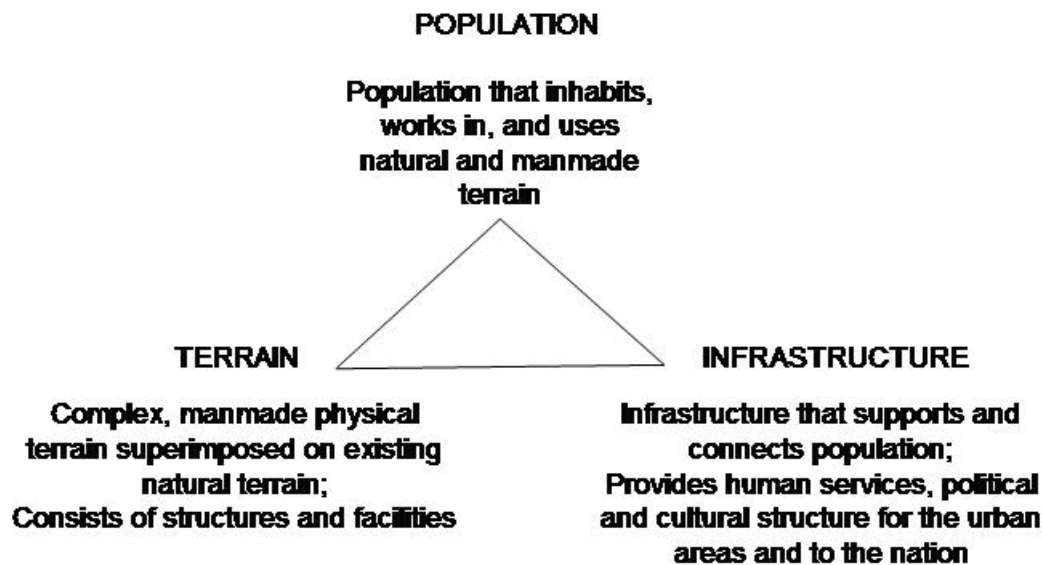
POPULATION

Population that inhabits,
works in, and uses
natural and manmade
terrain

TERRAIN

Complex, manmade physical
terrain superimposed on existing
natural terrain;
Consists of structures and facilities

INFRASTRUCTURE

Infrastructure that supports and
connects population;
Provides human services, political
and cultural structure for the urban
areas and to the nation

Fig. 1 Urban Triad based on JP 3.06, *Doctrine for Joint Urban Operations*

Once again, FM 34-130 or FM 2-01.33 does not provide any ready methodology to analyze the

population. Within the 2-01.3, the only mention of population within the process is a brief

section called "Analyze the Other Characteristics of the Battlefield" where there is brief guidance

on possibly considering population demographics which includes religion, living conditions,

political beliefs and educational level.[42] Throughout the rest of the document, there is no further

refinement of analyzing populations, let alone how they relate to the terrain or infrastructure.

Even in the subsequent discussion on intelligence tools, there is cursory attention placed on

activities matrices, time-event charts, link diagrams, and population status overlays. But these

products are very broad in scope and do not discuss analytic techniques.[43] One of the most

critical tools for analysts, an intelligence database is mentioned as a key task. In the IPB manual,

it points out that the data base helps analysts to "determine enemy and threat capabilities,

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[42] FM 2-01.3 *Intelligence Preparation of the Battlefield*, section 3-51.
[43] Ibid., 4-26 – 4-37.

vulnerabilities, and Enemy Course of Action."[44] But the discussion is limited to cataloging or

organizing the data inputs into a means that can be easily accessed. Unfortunately, the discussion

ends with giving an example that follows traditional military model which included Composition,

Disposition, Tactics, Training, Logistics, Combat Effectiveness, Electronic Technical Data, and

Miscellaneous. Unfortunately, much of these data categories may not be in a relevant format to

all elements within an urban center. The IPB manual provides a description of its process, not a

template or model.

Within ST 2-91.4, *Intelligence Support to Operations in the Urban Environment*, the

discussion of characteristics of the urban environment begins with a Venn diagram of the in

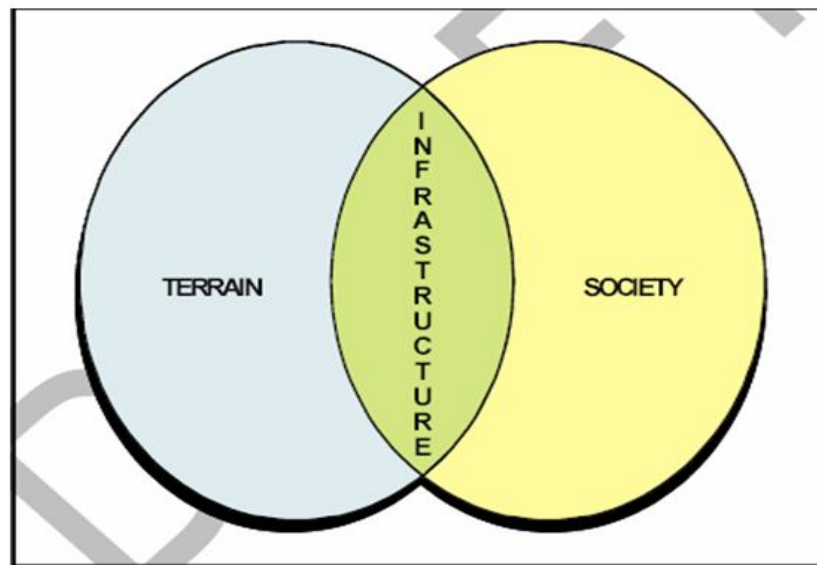terrain, society and the infrastructure in between.

Figure 1-1. Characteristics of the Urban Environment.
Fig. 2 from ST 2-91.4 *Intelligence Support to Operations in the Urban Environment*

This is congruent with the Urban Triad model proposed in JP 3.06. The manual clearly covers

the considerations in the physical domain for urban operations and goes further by proposing

sample intelligence requirements for various aspects of buildings.[45] The manual provides useful

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[44] Ibid., Appendix A section A-3.
[45] ST 2-91.4 *Intelligence Support to Operations in the Urban Environment*, 1-15.

sets of intelligence requirements for both the population and the infrastructure within the city. An information requirement like considering the ethnic percentage within the population provides background information to analysts. But the information requirement to understand the a group's physical boundaries of influence, level of dominance in relation to other groups, and reasons for that dominance provide an understanding that is tied to operations needed to in population centers.[46] These checklists are very helpful in illuminating the information requirements for Urban Operations. However, both the infrastructure and threat checklists are more comprehensive compared to the checklists that describe information requirements on population.[47] The Marine Corps *Urban Generic Intelligence Requirements Handbook* (UGIRH), which served as a source document for the ST 2-91.4 checklist, limits its scope to as an intelligence planning tool to generate information requirements in planning process.[48] Despite the utility of the checklists, they are not stand-alone tools for providing understanding of urban environments. ST 2-91.4 lacks a direct tie-in to IPB and briefly references the process using a similar framework as Mike Ley's work on factors in the Urban Environment.[49] There is no clear process on how to conduct Urban IPB, but rather a series of checklists and tools to help aid in forming questions, much like the UGIRH. Even though there is recognition of both urban terrain and infrastructure, the manual lacks any models or potential "templates" on understanding how systems work in either the cognitive or social domains.

ST 2-91.1, *Intelligence Support to Stability and Support Operations*, is far more ambitious and comprehensive it its role as a guide. The treatment of IPB constitutes a significant step forward in incorporating societal factors in the analysis. The art of applying IPB to stability operations and support operations is in the proper application of the steps to specific situations.

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[46] Ibid., 1-22.
[47] Ibid., 2-1 – 2-6.
[48] United States Marine Corps, *Urban Generic Intelligence Requirements Handbook* (Quantico, VA: United States Marine Corps, 1999).
[49] ST 2-91.4 *Intelligence Support to Operations in the Urban Environment*, 5-1 – 5-2.

> The primary difference between IPB for offensive and defensive operations as compared to stability operations and support operations is focus – the degree of detail required and the demand for extensive cultural, religious, ethnographic, political, social, economic, legal, criminal, and demographic analysis and synthesis needed to support the MDMP.[50]

Like the previous manuals, ST 2-91.1 covers the intelligence tools that help portray relationships between actors. Because of the nature of SOSO operations, greater emphasis is placed on human factors versus tradition threat formations, tactics and doctrine. The manual itself is organized along SOSO missions but within each mission there is a discussion of IPB. This focused IPB for each SOSO provides example of they types of questions that should be addressed as well as the tools that can assist in analysis. IPB methodology is reviewed and then applied in each mission set. This not only expands on the checklist framework of urban manuals but also establishes a tie to intelligence operations. An example of this is in the manual's treatment of support to peace operations. In a vignette, an analyst provides feedback to an S2 with reference to SIGINT collection. His knowledge of the threat capabilities compared to what he knew of his own unit's collection capabilities would require different systems, but more importantly, the threat's use of commercial systems required an understanding of how he purchased, serviced, encrypted, and used these systems. In other words, the analyst conducted a systems analysis of the threat's communication.[51] The vignette further explained how the analyst's efforts were turned into tools that the collection manager could use to focus his efforts. This deliberate linkage of IPB analysts to ISR operators who are charged with collection addresses a doctrinal seam between addressing the cognitive realm of analysts and the informational domain of ISR collection and processing. Additionally, the manual includes an appendix on analysis as well as one on how to analyze an insurgency. There is heavy emphasis on the use of models throughout the text, although it is short on examples.

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[50] ST 2-91.1 *Intelligence Support to Stability Operations and Support Operations*, 3-1.
[51] Ibid., 4-38 – 4-41.

There is no single source doctrine for Urban IPB. The general direction of the Army manuals has not proposed any radical changes to the IPB process. Much of this may be due to the lack of clarity on what should constitute Urban IPB. FM 2-01.3 does not advance any new changes to the four-step process. Rand's Jamison Jo Medby and Russell W. Glenn assert that IPB remains a sound methodology in their work *Street Smart: Intelligence Preparation of the Battlefield for Urban Operations.*[52] However, they assert that IPB is inadequate in addressing population analysis as well as depicting the relationships and connection between population, terrain and infrastructure.[53] Major Ziemba and Major Innocenti's theses on IPB not only offer an identical critique of the process, but both offer potential means to address the shortfall on analyzing and incorporating social linkages and societal analysis. Unfortunately, the IPB manual and the *Intelligence Support to Urban Operations* student text do not address these shortfalls. The heavy reliance on previously written doctrine like the Marine Corps UGIRH or the framework proposed by Mike Ley does not advance the Urban IPB process. Because of the heavy social and cognitive dimensions associated with people, ST 2-91.1, *Intelligence Support to Stability Operations and Support Operations*, presents potential ways to adjust the IPB process and the factors that are considered. Instead of a long checklist of urban facts to consider, ST 2-91.1 provides a framework for conducting IPB and using the analysis to drive collection, processing, and exploitation. Here, the analyst is a centerpiece in the role for driving the IPB process. Although ST 2-91.1 does not directly address urban operations, the social context in which SOSO is conducted is identical to the population element of the Urban Triad. Where all of the manuals remain deficient in is in addressing how the data and analysis of social and cognitive domains occurs within the urban construct. Even though the doctrine points to models and potentially reaching out to joint and interagency assets, Urban IPB is inadequate and incomplete without an examination of other means to understand social and cognitive domains within a city.

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[52] Jamison Jo Medby and Russell W. Glenn, *Street Smart: Intelligence Preparation of the Battlefield for Urban Operations* (Arlington, VA: Rand Corporation, 2002), 133.
[53] Ibid., 135.

Emerging doctrinal concepts from JFCOM provide an alternative framework for examining Urban IPB. During the JFCOM MILLENNIUM CHALLENGE 02 (MC 02) exercise, it was clear that in order to conduct EBO, a comprehensive understanding of the enemy was required in order to increase precision in targeting enemy systems and to determine the potential effects of such efforts. JFCOM defined EBO as:

> Operations that are planned, executed, assessed, and adapted based on a holistic understanding of the operational environment in order to influence or change system behavior or capabilities using the integrated application of selected instruments of power to achieve directed policy aims.[54]

MC 02 helped identify the ONA process as key to providing a holistic understanding of the threat. Although these concepts do not specifically address Urban IPB, the initial construct of ONA as a key enabler for rapid decisive operations (RDO) has questions about alternatives to IPB. What underpins ONA is the assertion that knowledge, which is defined as "awareness or understanding of an act, fact, or truth," is the basis for EBO. In the case of superior knowledge, it is defined as "knowledge greater than that possessed by another; awareness of a condition or fact that affects another who was not aware of it."[55] On the other hand, information which is defined as "a collection of facts or data; knowledge of specific events or situations that has been gathered or received by communication; intelligence or news" is what is equated to the current processes of IPB in terms of informing the commander.[56] Although this may be semantics, the definitions illuminate the difference in expectations from simply providing a description of the elements that make up the operational environment to understanding how a system works. The underlying assumption within EBO is that a commander who knows more about the environment, threat, and self compared to his adversary can make better decisions faster and prevail over an opponent. While this does not mark a significant shift in concepts like Colonel John Boyd's OODA

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[54] United States Joint Forces Command, *Draft Standing Joint Force Headquarters Core Element Standard Operating Procedures* (Suffolk, VA: Joint Warfighting Center, 14 Jul 2004), G-2.
[55] *Merriam-Webster Dictionary*, online edition available from http://dictionary.reference.com/search?q=knowledge; Internet; accessed 10 December 2004.
[56] Ibid., available from http://dictionary.reference.com/search?q=information; Internet; accessed 10 December 2004.

(Observe, Orient, Decide, Act) Loop construct, ONA represents a significant change of approach to how uncertainty is addressed.

The heart of ONA is the System of Systems Analysis (SoSA). SoSA is rooted in systems theory, which is "the transdisciplinary study of the abstract organization of phenomena, independent of their substance, type, or spatial or temporal scale of existence. It investigates both the principles common to all complex entities, and the (usually mathematical) models which can be used to describe them."[57] The key piece for the SoSA is the identification of the essential elements within a system. In the Standing Joint Force Headquarters (SFJHQ) SOP, the example used is in the examination of a country's economic system. It points to the importance of understanding sectors of the economy that produce income which is important to the government. In the systems theory definition, the use of models to help describe the economy may not be evident to the SoSA analyst. In the example given within the SFJHQ example, the model used is based off a western market-based economy. The example goes on to identify subcomponents of the economy, such as petroleum refining or oil transportation networks that could either be strengthened or weakened to have an effect. This example presupposes an understanding of how the subcomponents of the economy relate to each other. From here, the identification of vulnerabilities, like an oil pipeline in the example, by the SoSA analyst is supposed to highlight opportunities for exploitation. Nodes associated with capabilities like oil pumping stations are identified and potentially targeted based on how well it can achieve the desired effect. This analysis is then combined with other SoSA work, like a political analysis, to find potential convergence points, such as an interior minister or an economic policy that can be developed into a potential target. This data on nodes and vulnerabilities is placed into a database for others within the planning staff for their use in developing the ONA.[58] The ONA would be continually

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[57] *Principia Cybernetica Website*, available from http://pespmc1.vub.ac.be/SYSTHEOR.html; Internet; accessed 10 Dec 2004.
    [58] Joint Forces Command, *SFJHQ SOP*, B-9 – B-16.

maintained and updated as a base product to assist in planning, not unlike a running intelligence estimate at a tactical-operational level headquarters.

Some of the key assumptions made in the JFCOM concept is that expertise in certain areas will not necessarily be resident within the SFJHQ. The analysis required to evaluate systems within a PMESII construct would most likely be outside the realm of military expertise, such as city planning or delivery of utilities. It clearly advocates accessing outside resources where knowledge and expertise is resident. Brigadier General (Retired) Wayne M. Hall, who was an proponent for modernization of intelligence future structure and incorporation knowledge based doctrine into military organizations, articulated a concept called "Knowledge Advantage Centers" in his book *Stray Voltage*.

> Knowledge Advantage Centers are the confluence of collection, communication, automation, thinking planning and decision making where data, information, and knowledge fuse, where knowledge workers collaborate to turn information into knowledge, and where leaders make decisions.[59]

Hall's concept is embedded in the JFCOM concept. It advocates a national Knowledge Advantage Capability which would allow the Combatant Commander the ability to access knowledge from all elements of national power and would be able to assist in decisionmaking.[60] JFCOM clearly envisions a joint, interagency and intra-agency collaborative information environment that could encompass all of the people, processes, tools and products needed to enable EBO. JFCOM recognizes that establishing a collaborative interagency process may be very difficult. Resources to field the interagency expertise in each regional combatant command's SJFHQ would be difficult. Without a theater security cooperation plan (TSCP) or Intelligence Campaign Plan (ICP) that provides a potential framework addresses requirements for interagency support at the national level, ONA's organizational recommendations are limited in scope.

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[59] BG (Ret.) Wayne Michael Hall, *Stray Voltage: War in the Information Age* (Annapolis, MD: Naval Institute Press, December 2003), 160.
[60] Joint Warfighting Center Joint Doctrine Series Pamphlet 4, 23.

The ONA requires access to numerous information sources that, unlike traditional military order of battle, requires broad expertise in searching and categorizing all varieties of information along the PMESII lines. It is assumed that along the way there must be a level of sufficiency or quality of data mining that will meet the requirements for knowledge superiority. Priority, focus, and depth of the ONA effort is not clearly articulated. For example, how much information on economics would be necessary in order to identify and understand key relationships and nodes? Is it the correct line of analysis needed to provide the commander with sufficient knowledge? In the end, the challenge of expertise lies in the ability to integrate information from many sources and develop novel combinations that provides the commander new insight into the tactical and operational problem.

The most critical resources in the ONA process are people. BG Hall places great emphasis on "knowledge workers" who "add value to information and existing knowledge products by contributing his or her thoughts, intuition, knowledge, understanding experiences and skills."[61] However, the dynamics of creating a collaborative environment, coupled with the variety of academic disciplines, fields of expertise, and complexity of problem, is not easy. The intelligence community provides a prime example of the dangers of how the lack of a coherent strategy over time can induce dysfunction.

> The ODCI's (Office of the Director Central Intelligence) first job, the team decided, was crafting a common vision, a strategic plan that set goals for the entire intelligence community. The fact that one did not exist, insiders say, was itself an indictment of the system. Within a year, the ODCI staff had produced a classified road map. Titled simply "Strategic Intent for the Intelligence Community," the plan was anything but simple. At the heart of the strategy was integrating a dozen disparate agencies into a true community by breaking down the walls that impeded the flow of intelligence. The walls, however, were everywhere. Not just between agencies but within them, too. At the CIA, the spies of the Operations Directorate distrusted the analysts whose job was to make sense of patterns and look for clues. The FBI's criminal investigators and spy catchers refused to talk to each other. The National Security Agency, the nation's global eavesdropping shop, had so many internal E-mail systems that the director had trouble communicating with his own staff. In the arcane argot of the intelligence world, such divisions are called stovepipes, vertical tubes that send

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[61] Hall, 133.

information upward for superiors to mull but seldom across divisions, where it could be checked and added to other data. Reformers spoke of "gorillas in the stovepipes" – program managers who protected their turf from outsiders at all costs. "If you collected it," Simon explained, "you own it."[62]

Although ONA's purview does not extend to all of the intelligence community, the lessons from other organization's attempts at collaboration are not accounted for within the concept. If a SoSA analyst can only use the information he has access to, the ONA construct may only provide a partial picture of his analysis.

Because of the prototype nature of ONA, the concept is not without problems. There is inherent difficulty in managing the SoSA process. The integration of different organizations and centers of expertise, as well as the ability to determine the level of effort in analyzing a problem set is not addressed. In sharp contrast, IPB provides a clear framework that is already nested within a decisionmaking process. Within the IPB process, organizations are optimized to provide single discipline and multidiscipline collection, processing and analysis. The hierarchical structure of military intelligence organizations provides the capability for centralized management. What is unclear with ONA is its relationship to decisionmaking. Clearly the SoSA construct has great appeal in developing a means to access expertise and knowledge. What is not clear is how that knowledge and expertise is bounded by the problem faced in an urban environment. A baseline ONA provides the data that would add depth of analysis to the overall intelligence estimate. But determining which elements of the estimate and potential levers of influence are used in the ONA is not clear. It appears that at best, there is a system for the SJFHQ to vet ideas and vulnerabilities for exploitation. However, bounding the problem requires understanding critical elements and their relation to one another. In the urban environment, is the critical element the electrical grid system within certain neighborhoods where there is a high level of violence? Or are the ethnic frictions within the neighborhoods true drivers for violence? Or

[62] David E. Kaplan, "Mission Impossible: The Inside Story of How a Band of Reformers Tried and Failed--to Change America's Spy Agencies" *US News and World Report*, 2 Aug 2004, available from http://www.usnews.com/usnews/news/articles/040802/2intell.htm, accessed 14 November 2004.

are the influential figures like local sheiks or imams vying for local power? ONA

recommendations must be organized and articulated in such a way to account for bias and level of

validity, but also show the critical connections and touch-points that we can influence. In the

end, collection must be executed in order to help confirm or deny our hypotheses for behavior.

What limits IPB is the ability to move beyond description of the physical domain

problems. The lack of clear models to use in analyzing the urban environment hampers IPB by

limiting the analysis to description and limited analysis rather than identifying potential

relationships and analysis. The ONA is an inherently multiple domain process. The potential to

describe and understand the impact of other domains of warfare such as the cognitive and social

provides an alternative analytic line of investigation that is missing in the current IPB. Within the

Urban Triad construct, there is the ability to develop a SoSA or even a body of knowledge on the

urban society that links the population, infrastructure, and terrain. The possibility of linking

expertise in cultural anthropology, psychology, and urban planning into the analysis of effects

from actions inside an urban environment is clearly intriguing and necessary. Although an ONA

is meant to be a comprehensive database for understanding a particular country or entity, there is

equal potential for this methodology to complement the urban IPB conducted at tactical and

operational echelons.

Both IPB and ONA are viable means for of supporting planning processes for urban

operations. However, both processes are faced with the challenges of the changing nature of

urban conflict. Current IPB methodology is optimized for formations, major combat operations,

and focused on the description of the environment. Current operations show the greater need for

understanding how culture, religion, ethinicity and other "soft science" areas both affect and

provide opportunities for operators. SOSO provides some of the descriptive aspects of the social

network within urban centers, but it is not complete. In deliberate planning, access to multiple

disciplines of thought and even debate is needed in order to frame social complexity. What will

be the challenge to ONA is the ability to present analyses of social networks within a city. Such

lines of investigation would be very difficult without directed collection or access to the specific environment. As it is, ONA may be only able to address a small portion of the pre-combat intelligence needs. But because of the multiple SoSA analyses, there is a greater likelihood of attaining a holistic view of the urban center than what traditionally has been limited to imagery and generic intelligence.

The structure of organizations shapes the ability to execute its prescribed functions. Where ONA has a horizontal type organization among the SoSA analysts, a hierarchical organization may better serve to focus and harmonize efforts along potential lines of operation. The organizational structure needed for planning requires greater thought for conducting ONA. With the processes outline in the SJFHQ SOP, there is clearly the sense that the internal bureaucracy in vetting analyses and potential effects could hamper decisionmaking and understanding. It makes little difference if the analyst makes an argument for the conditions in the city if it ends up being pushed aside. Analytical dissent is not addressed in the ONA concept – no dialectic is evident. According to JFCOM, ONA is not meant to supplant JIPB.[63] However, it remains unclear what is the division of effort when crisis action planning takes place and the emphasis on current intelligence becomes the priority.

Complexity is at the core of the Urban IPB problem. Both IPB and ONA provide processes that can address parts of the Urban Triad but may fall short based on access to information, analytic expertise, organizational structure, and internal processes during planning. Regardless, there is merit for additional study and development of ONA as an operational level tool to assist in Urban IPB. The appeal of ONA is the ability to address the problem at different levels, whether using a PMESII construct or any other to understand the social dynamic within cities. This does not negate or downplay the contribution of technical collection against physical dimensions of cities, but rather expands on our understanding of how the inhabitants actually

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[63] Joint Warfighting Center Joint Doctrine Series Pamphlet 4, 21.

function within the environment and how adversaries can use it to its advantage from a cognitive, social realm.

As a whole, both IPB and ONA have strengths and limitations. Current IBOS doctrine appears to disperse key elements of Urban IPB among three different manuals at this time. Coherence in Army Field Manuals in terms of Urban IPB is missing. The failures to address the Urban Triad construct within intelligence doctrine removes the necessary context needed in understanding the factors affecting operations. JFCOM's ONA offers some organizational and procedural approaches that merit attention. The SoSA process clearly resonates with analysts as a means to deconstruct the Urban Triad. This is especially helpful in addressing the social domain of the urban environment. Organizations and processes may also provide some necessary focus, but in the end, social models may be the new templates needed today for urban analysis.

CHAPTER FIVE

Recommendations and Conclusions

> Current US forces have been optimized for combat in certain environments… All U.S. forces were designed to fight with the advantages of air dominance and a physical environment with robust infrastructure… This doctrine and supporting force design provided the U.S. military overmatching power against organized states with conventional forces operating with a conventional strategy and doctrine… Future opponents will thus seek to avoid symmetrical operations in environments optimized for U.S. capabilities. Future adversaries will often seek to operate from urban and other complex settings as the most effective way to deal with U.S. forces.[64]

Urban Intelligence Preparation of the Battlefield (IPB) is clearly a requirement for our immediate and future operations. The feedback from current operations points to a deficit in our ability to understand and anticipate a changing and adaptive threat. The immediate doctrinal responses have not resulted in any significant change to the four-step IPB process but have helped amplify additional considerations that must be incorporated into urban analysis. Experimentation by JFCOM continues to advance EBO and concepts like ONA for consideration. As comprehensive and ambitious as ONA is, there is clearly merit in examining this alternative process to supplement IPB for urban operations. In seeking a way ahead for addressing Urban IPB, this study recommends the following:

- Consolidate and focus Urban IPB doctrine

- Incorporate the Urban Triad construct into Urban IPB

- Incorporate theory, models and city planning into analyst training

- Use ONA as a tool for organizing and focusing collaboration

- Establish a Joint Urban /MOUT analysis center

- Make Urban IPB a National Intelligence Priority

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[64]United States Joint Forces Command, *The Joint Operations Environment – Into the Future* Coordinating Draft, 115.

Consolidate and focus Urban IPB doctrine

Doctrine remains at the heart of the Urban IPB issue. Although the methodology is sound and has been applied in numerous contingency operations, the current draft revision of FM 2.01.3 does not address urban operations. The ST 2-91.4, *Intelligence Support to Operations in the Urban Environment*, is at best a checklist for things to consider in urban operations much like the Marine Corps Urban Generic Intelligence Requirements Handbook. ST 2-91.1, *Intelligence Support to Stability Operations and Support Operations*, provides a better model in presenting the complexity of full spectrum operations. Likewise, the use of an IPB process within each vignette helps to frame the unique factors that should be considered in SOSO. Any changes to the IPB manual should incorporate the urban environment. The use of a separate doctrinal text to highlight collection, ISR integration, and reach for urban operations has its place. However, a consolidated Urban IPB manual using the format similar to the ST 2-91.1 would bring doctrinal coherence. This also should be replicated in FM 3-06, *Urban Operations*.

Incorporate the Urban Triad construct into Urban IPB

The incorporation of the Urban Triad construct simplifies the framework for consideration. Although it is incorporated in FM 3-06, it is missing from FM 2-01.3. The Urban IPB emphasis to date has been on the terrain and the associated effects. However, for Urban IPB to mature, it needs to address both the infrastructure and population analysis that make up the core of the urban environment. Currently there is no systematic tie between the four-step IPB process and analysis of infrastructure and population. What potentially could address these factors is the use of SoSA methodology. At a tactical and operational level, SoSA may not be practicable based on manning and resources. However, the types of questions and assumptions that can be generated during mission analysis may help in focusing data-mining efforts and the tasking of ISR assets. During pre-conflict operations, the assessment of the broad social make-up of an urban environment would largely have to be based on existing data sources. Much like

what JFCOM envisioned would be embedded in an ONA, an initial start point for societal data (demographics, religion, ethnic groups, and conflicts) would be essential for anticipating changes in the urban centers. As Threat Evaluation is being done, the challenge is to have an initial model of how elements within the society would react to influence. ONA provides a mechanism that can presumably test hypotheses on potential actions of the population and the potential effects it could have on US operations. The corollary of this process is wargaming in MDMP. The challenge is how to conduct such rapid hypothesis testing on the social network of a city in order to influence the decisionmaking process.

Incorporate theory, models and city planning into analyst training

Additionally, reference to domains of warfare would fill a gap in the current framework for considering the effects that will be encountered in cities. Recognition of different domains such as the social and cognitive will expand Urban IPB towards factors more associated with connections that are not apparent. A theoretical base, such as Mao's model of insurgency, Dr. Joseph Strange's model for Center of Gravity Analysis, and Principles for MOOTW should be incorporated as another means to describe and understand urban environment. Just as there appears to be a blending of the levels of war, there is a need to explicitly address theory within doctrine in order to make it coherent.

The training of analysts for Urban IPB cannot be limited to the traditional methods used today. Within the constraints of current doctrine, Urban IPB needs to incorporate greater training on the domains of warfare as a way to understand the environment. The analytic tools that were optimized for major combat operations are still applicable to understanding the physical environment, such as UAV imagery. These technical collection means are adapted to describe the physical environment of cities. Where there is greater concern is in the ability to analyze populations beyond using a black, white and gray list to categorize friend and enemy. Major Ziemba's FTNUV model addresses the nature of a complex social environment where analysts

need to be aware of the range of actors, enablers and influencers within the society. Such models are invaluable for training junior analysts who may not have the working experience needed to understand the social environment. Additionally, the use of ONA tools like the SoSA could provide tactical and operational level analysts with an alternative method for analyzing populations. Additional training in theory, particularly in relation to social and cognitive realms would help to inoculate junior analysts from mirror imaging. In particular, the use of models like Dr. Strange's model for Center of Gravity analysis should be incorporated into intelligence curriculum and can be applied to an ONA process. Exposure to cultures also will provide the essential background needed but lacking such opportunities to travel or live in an area of interest, access to area studies departments of universities or colleges may provide an initial start point for gaining cultural sensitivity to an urban center.

Collective training within operational headquarters should also be examined. Urban IPB cannot be just a special project formed under contingency situations like the Baghdad planning by V Corps in 2002. The challenge is integrating urban analysis into unit training on a regular basis. Traditional tools like terrain walks and staff rides can be modified to develop greater understanding of how cities work. For the staff, the concrete experience of conducting planning and operations inside an urban center may be too difficult to replicate today, but at a minimum, a familiarization with the mechanisms of a city and the population within it is worth study. Although an American model may be considered on the high end of advancement, the basics like medical, security, information, utilities, and food are all services that make up the urban landscape and tie people to the terrain. Study of these systems and how they interact in the urban terrain is a significant undertaking but is probably needed in order to develop a knowledge base.

Use ONA as a tool for organizing and focusing collaboration

For Urban IPB, doctrine cannot be a substitute for urban expertise. Unlike traditional military analysis where weapons, doctrine and organizations are familiar to military intelligence

analysts, Urban IPB requires a different set of knowledge bases. Expertise on urban planning, culture, psychology and history may be more critical to developing an understanding of potential adversaries. As Brigadier General John Custer noted, "Whereas 10 years ago, those concerned with the future saw the problem as bandwidth, today's true visionaries realize the problem is information about information."[65] Where IPB is focused on the process that occurs within the intelligence staff of a headquarters, the distributed nature of expertise and skills requires an alternative methodology. An ONA of an urban center at the operational level could provide a startpoint for tactical staffs. Reachback capabilities at an operational level should be able to harness the expertise and in fact, allow for direct collaboration between tactical and national level entities. It is not so clear that investing in more specialization within military intelligence analysts can solve the inevitable shortfall of urban expertise. However at a minimum, templates like what is in the FM 2-91.4, *Intelligence Support to SOSO*, helps to identify potential information shortfalls prior to operations. A common language in communicating with urban experts is needed to help enhance communications and understanding. Home station training that involves speaking with city planners such as the efforts by 1st Cavalry Division prior to their rotation to Iraq are an excellent example of urban familiarization. Items like how city infrastructures function may be applicable in many parts of the world and can aid in developing an "Urban Modified Combined Obstacle Overlay (MCOO)" to visualize how a city operates. Likewise, typical law enforcement methods used in the United States provides a potential doctrinal template for criminal action. An ONA could help provide background on how criminal organizations operate within a city and what strengths and vulnerabilities can be identified. Again, potential home station training of analysts and commanders can help increase a knowledge base that may lack such a perspective.

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[65] BG John Custer, "Reach: Leveraging Time and Distance" *Military Review,* March-April 2003, available at http://militaryreview.army.mil/download/English/MarApr03/custer.pdf, 6.

Establish a Joint Urban /MOUT analysis center

The complexity of urban operations merits the creation of a national level urban analysis center. This recommendation has been echoed in other writings such as the works done by LTC Brian Keller and LCDR James Steadman. Such an organization could be a focal point for the analysis and databasing of urban centers around the world. Moreover, the pooling of cross functional expertise on urban environments at such as center would provide a center of excellence that within an ONA construct, be the repository of expertise beyond the DoD community. This concept is not new. During the 2001 Rand conference "The City's Many Faces" the Joint Staff J9 recommended the creation of a Joint MOUT Center of Excellence/Analysis.[66] The presence of such as center should be treated, as LTC Keller believed, " not unlike other function standing task forces (organizations) responsible for counter-terrorism, counter-proliferation of weapons of mass destruction, or counter-drug operations would leverage national intelligence collection capabilities to support operational requirements of CINCs and their operational forces."[67] Such a center could serve a nexus for interagency, academia, and other organizations to enhance the body of knowledge on urban operations but also advance potential theories on how elements of the Urban Triad interact.

Make Urban IPB a National Intelligence Priority

In planning urban operations, greater cooperation with national level intelligence organizations will be needed. Regional Combatant Commanders have many means to articulate their requirements. One method may be through the use of the newly formed Intelligence Campaign Plan (ICP) initiative proposed by the Undersecretary of Defense for Intelligence (USD-I), Dr. Stephen Cambone.

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[66] LtCol Duane Schattle, The City's Many Faces Joint MOUT Mission Area Analysis and Mission Need Assessment, (Washington, DC: Rand Corporation, 2002), 282.
[67] Keller, 29.

As we develop integrated approaches to acquiring and applying collection assets, we must also develop integrated approaches for planning and conducting intelligence operations. We have begun exploring the concept of Intelligence Campaign Planning, which is designed to synchronize and integrate intelligence into the commander's adaptive planning process and, when fully developed, will bring together DoD and IC capabilities in a more synergistic effort. Intelligence Campaign Plans are designed to focus the intelligence community's capabilities on the commander's critical decision requirements. Under the old paradigm, intelligence developed stove-piped plans that were poorly coordinated. Recent lessons learned and new operational concepts require intelligence plans that are,fully integrated, multi-discipline, holistic and support all phases of operations.[68]

Dr. Cambone's ICP effort provides a potential vehicle for integrating tools for Urban IPB. The implication that an operational commander can articulate his requirements for urban intelligence and be able to have a means to focus collection and analytic efforts of national intelligence agencies in a systematic manner has great promise. The intent of the ICP is to establish a responsive national intelligence structure focused on operational commanders needs. In the case for Urban IPB, the an Regional Combatant Commander's (RCC) ICP serves as a means to articulate the collection, processing, analytic and dissemination requirements needed for urban operations. Currently, the USD-I's efforts are focused on DoD's national intelligence organizations. With the recent passage of the National Security Intelligence Reform Act of 2004, the ICP may prove to be a key enabler in bringing capabilities to Urban IPB analysis. If the intelligence community regards operations in urban areas as a critical capability, the USD-I may have an opportunity to truly leverage policy on behalf of combatant commanders.

Conclusions

Urban operations will require examining the roles within the intelligence staffs. Although not part of the scope of this study, the organization of intelligence functions like all source analysis, single source analysis, collection management, and support to targeting are

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[68] Transcript from testimony of Dr. Stephen A. Cambone, Undersecretary of Defense for Intelligence, United States Senate Armed Services Committee Strategic Forces Subcommittee, 7 April 2004.

optimized for Major Combat Operations (MCO) at tactical and operational echelons. In looking

at sustained urban operations, collection management will be essential in optimizing technical

collection assets to not only address physical domain requirements, but also help augment

HUMINT collection and analysis. In urban environments, the use of combinations of collectors

to address information requirements not only may assist in tipping HUMINT collection, but

becomes essential in developing a clearer understanding of the informational, infrastructure, and

social environment. Additionally, the use of technical collection to map key infrastructure and

environment will be essential in trying to understand the overall environment whether it is

categorizing the baseline signals that are part of the city or the level of pedestrian traffic in

certain parts of the neighborhood. For collection managers, the use of limited collection assets

not only forces prioritization of effort, but also increases the need for horizontal integration

among services. For example, the need for near real time imagery is not based on what service

owns the collection platform but rather, what capabilities are available within a given time and

how to exploit such collection. Urban IPB requires very detailed information that may not seem

critical to one service but is essential to a ground commander. The collection manger must have a

joint and interagency view toward the acquisition of urban information to support operations.

Additionally, the use of technical insertion packages to respond to collection requirements in an

urban environment cannot be overlooked. National level intelligence organizations can bring

technical collection capabilities that may help provide a survey of the environment. Such

capabilities blend the distinction between national and tactical collection in order to bring

intelligence to commanders. Urban IPB cannot be limited by what collection means are available

with organic collection assets. It is a joint and interagency problem set that requires a joint and

interagency ISR plan to address information shortfalls.

  In examining the personnel aspect of Urban IPB, this issue is how to acquire and develop

Urban IPB expertise. Two complementary strategies have already been covered. The ability to

reach to other organizations and experts on aspects affecting urban operations is one approach.

The other was the education of staffs and analysts on the complexity of the urban environment. A third approach is to examine what expertise already exists within organizations. In particular, the reserve and national guard forces provide soldiers who have experience within many of the areas that were mentioned earlier. Although not a primary means, former city administrators, law enforcement officials, utility workers all lend potential expertise that could be tapped for conducting Urban IPB. Additionally, greater consideration of what academic majors and backgrounds of officers and soldiers could be used in forming ad-hoc planning groups for Urban IPB. This is clearly not the ideal situation in managing personnel, but it is clear that the need to find expertise may be present within our own force.

In addressing Urban IPB, greater consideration of the use of emerging concepts like EBO and ONA appears to provide an alternative to a descriptive and fixed methodology. Although imperfect, the expansion of understanding the urban environment in the context of both the Urban Triad and along multiple domains of warfare can provide the lenses to view military operations in cities. The development of doctrine that embraces a broad spectrum of activities only helps to clarify the context in which operations may be conducted, such as the three-block war. Research and studies to date not only confirm the complexities of modern urban operations with the emphasis on minimizing collateral damage and impact to populations, but also point to the gradual shifting of the importance of understanding the cognitive and social domains of a city. The expansion of the urban construct from physical aspects such as the surface, subsurface and supersurface of the urban environment towards attempting to understand how the social network of a city functions within the city is a significant change in the operation framework. The ONA process provides the opportunity to see the urban environment in light of multiple factors such as PMESII. The materiel solutions sought by the Army G2 during his testimony to the House Armed Services Committee represent one approach to addressing intelligence shortfalls. Without question there is always a need for investments in new technologies and in breaking down the stovepipes that characterize the intelligence community today. However, placing these issues

into the context of intelligence support to urban operations, there is no silver bullet solution. Urban IPB is a significant challenge to operating forces today and will remain so for the foreseeable future. Solutions to the lack of information about adversaries require aggressive strategies to improve our understanding of cities through education, access to expertise, use of alternative planning tools, implementation of new policies, and seeking ways to employ our collection systems in novel ways.

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